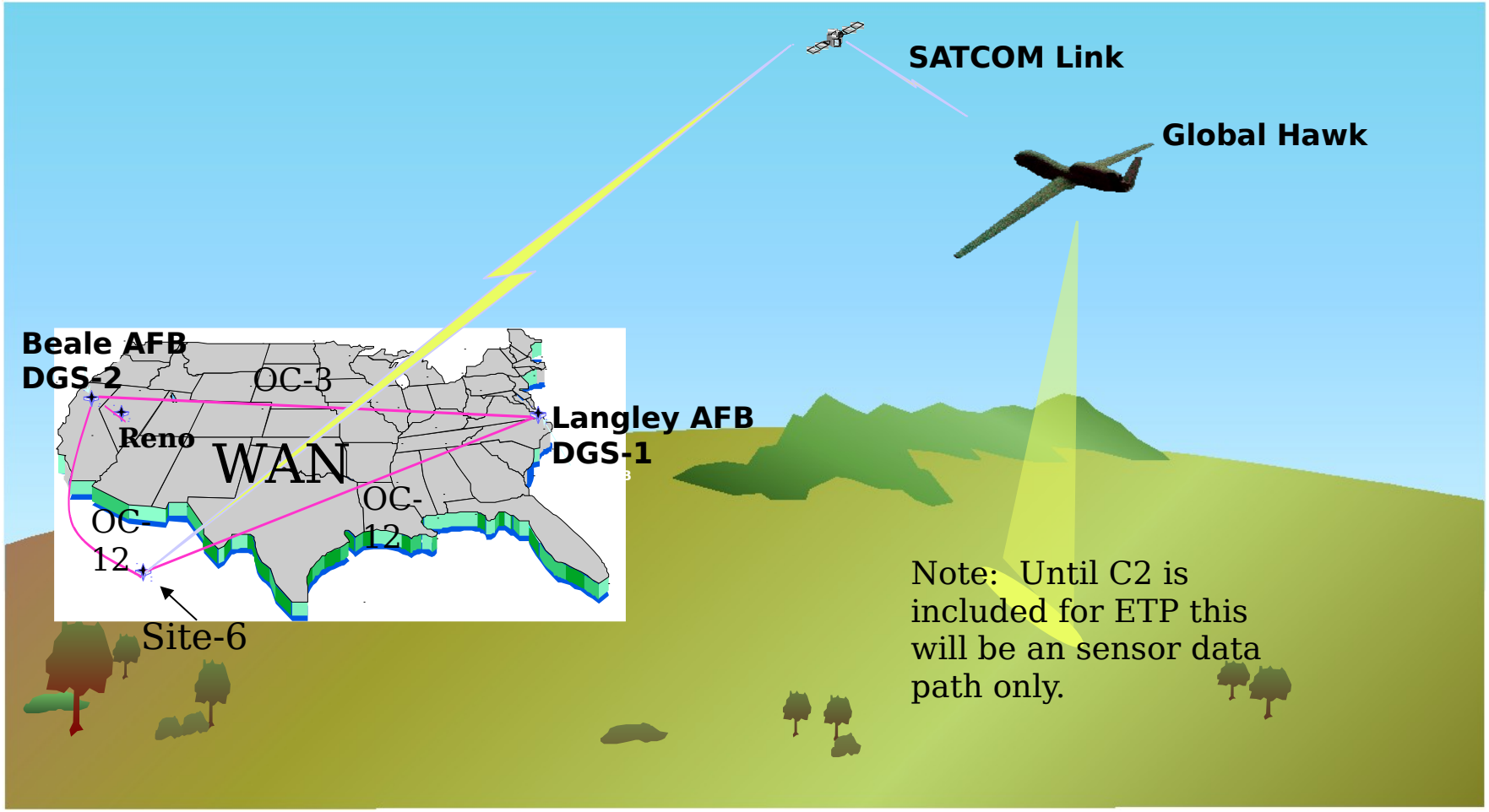
Global Hawk/ETP Requirements Meeting

ETP

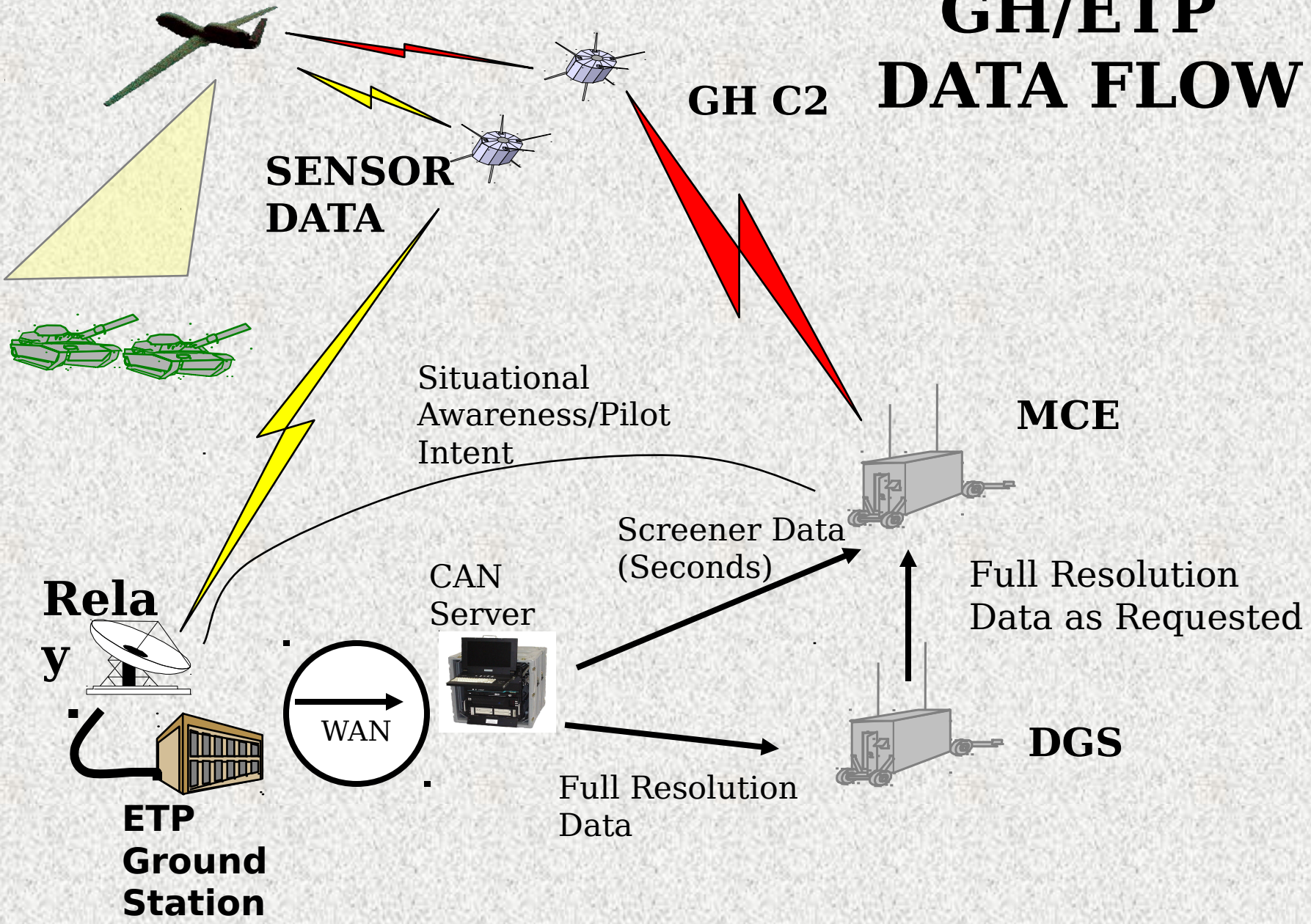
Scott Ritchie

28 Oct 03

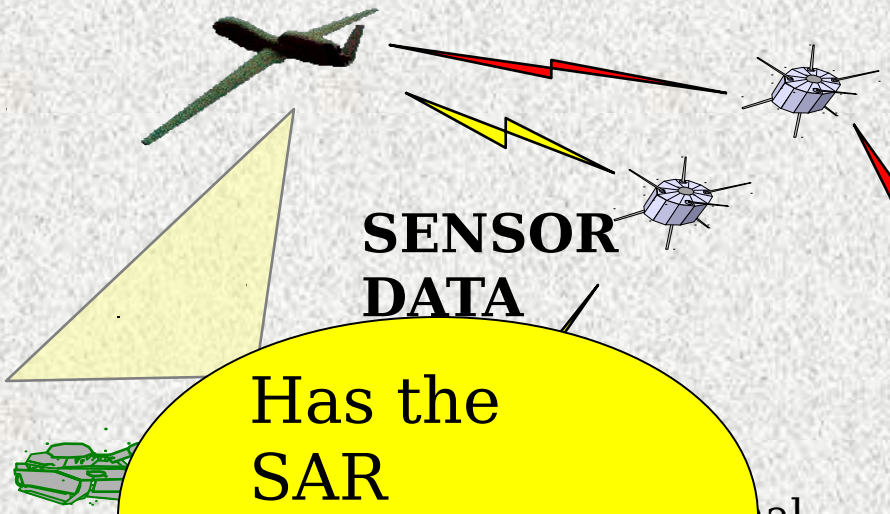
ETP


SATCOM Link
Global Hawk
Beale AFB
DGS-2
OC-3
Reno
WAN
Langley AFB
DGS-1
OC-12
OC-12
Site-6
Note: Until C2 is included for ETP this will be an sensor data path only.

GH/ETP DATA FLOW



GH/ETP DATA FLOW



GH C2

SENSOR DATA

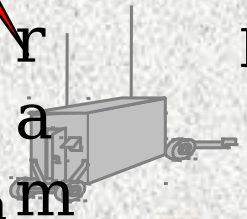
Has the SAR framing format been changed for the CIP?

al
ess/Pilot

Rela
y

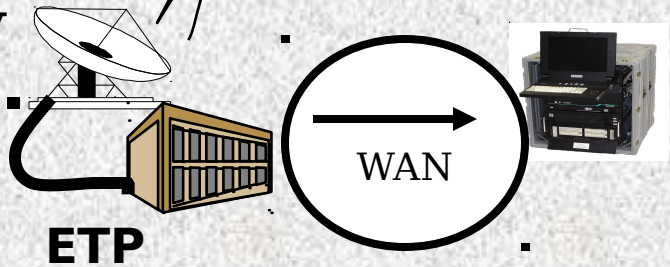
Screener Data (Seconds)

Full Resolution Data as Requested



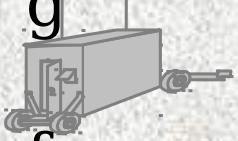
MCE

Framing format



ETP Ground Station

Full Resolution Data



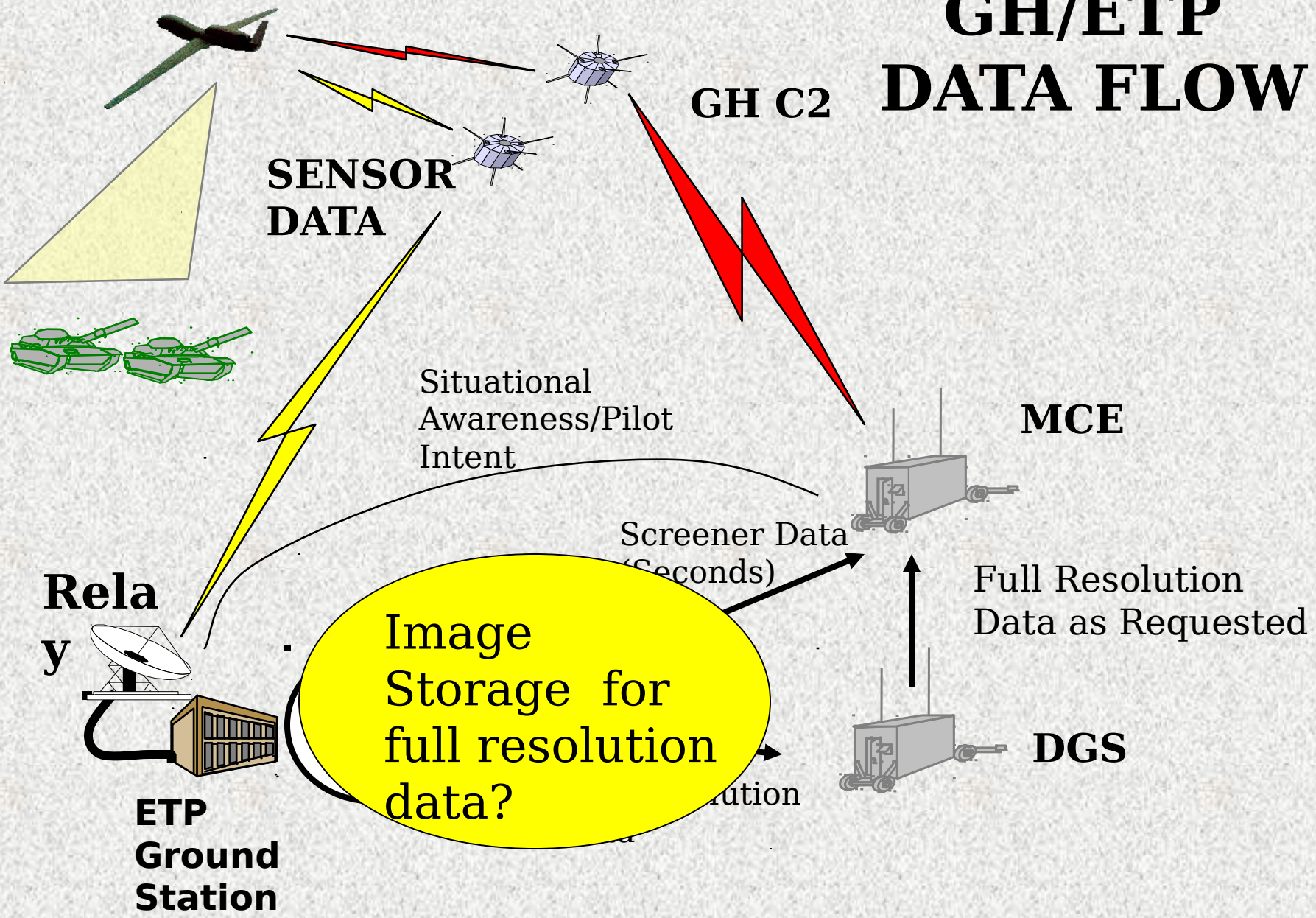
DGS

RATE CHANGE FORMAT

- The CIP requires the format change to ensure smooth processing of the SAR data

- NG to put L3Comm on contract to support effort

GH/ETP DATA FLOW



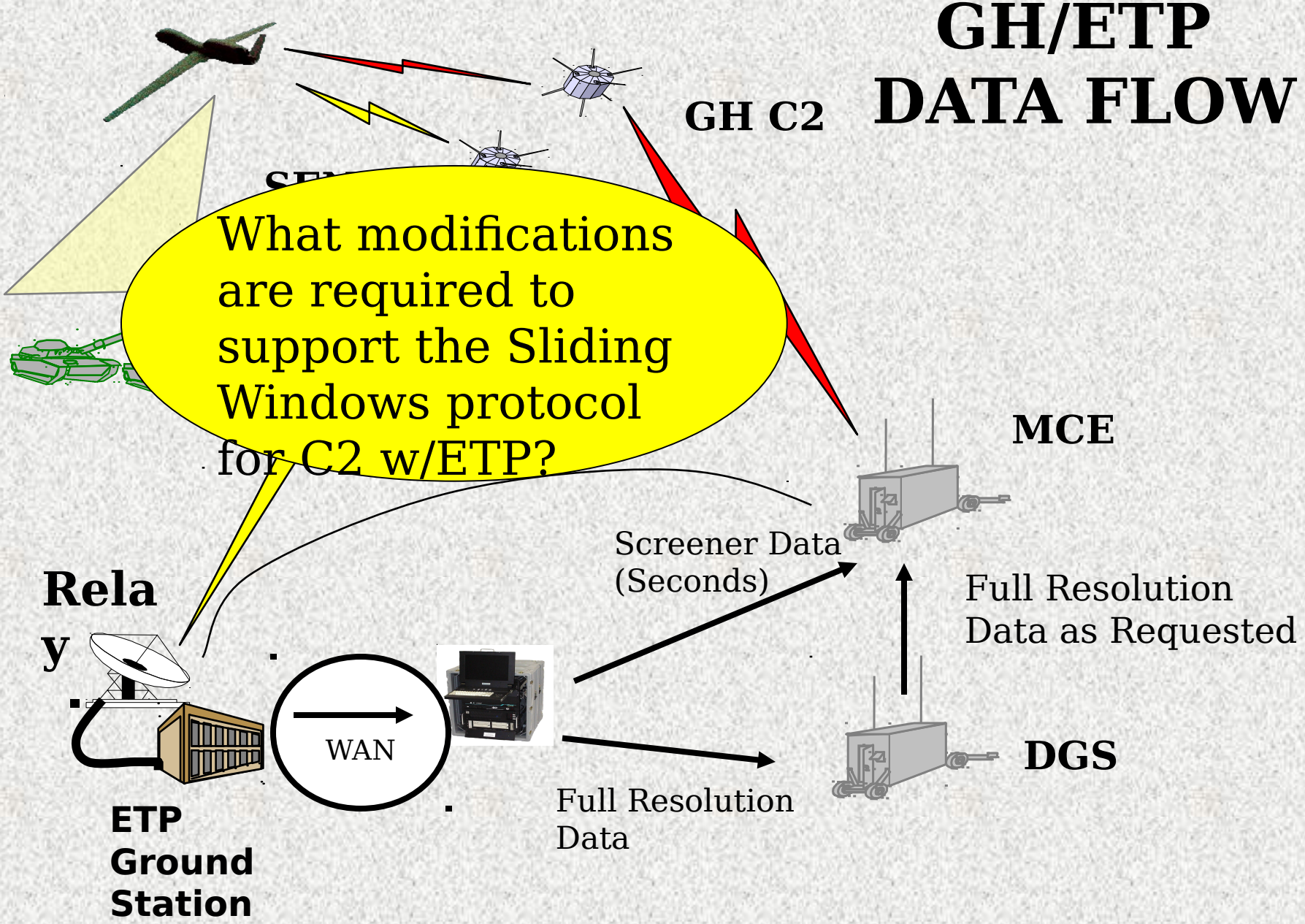
STORAGE OF IMINT

- The RSCWS has the capability to store the full resolution data – is this the right place?

- Will the RSCWS require “beefing up”

- Would a separate server be a better solution?

GH/ETP DATA FLOW

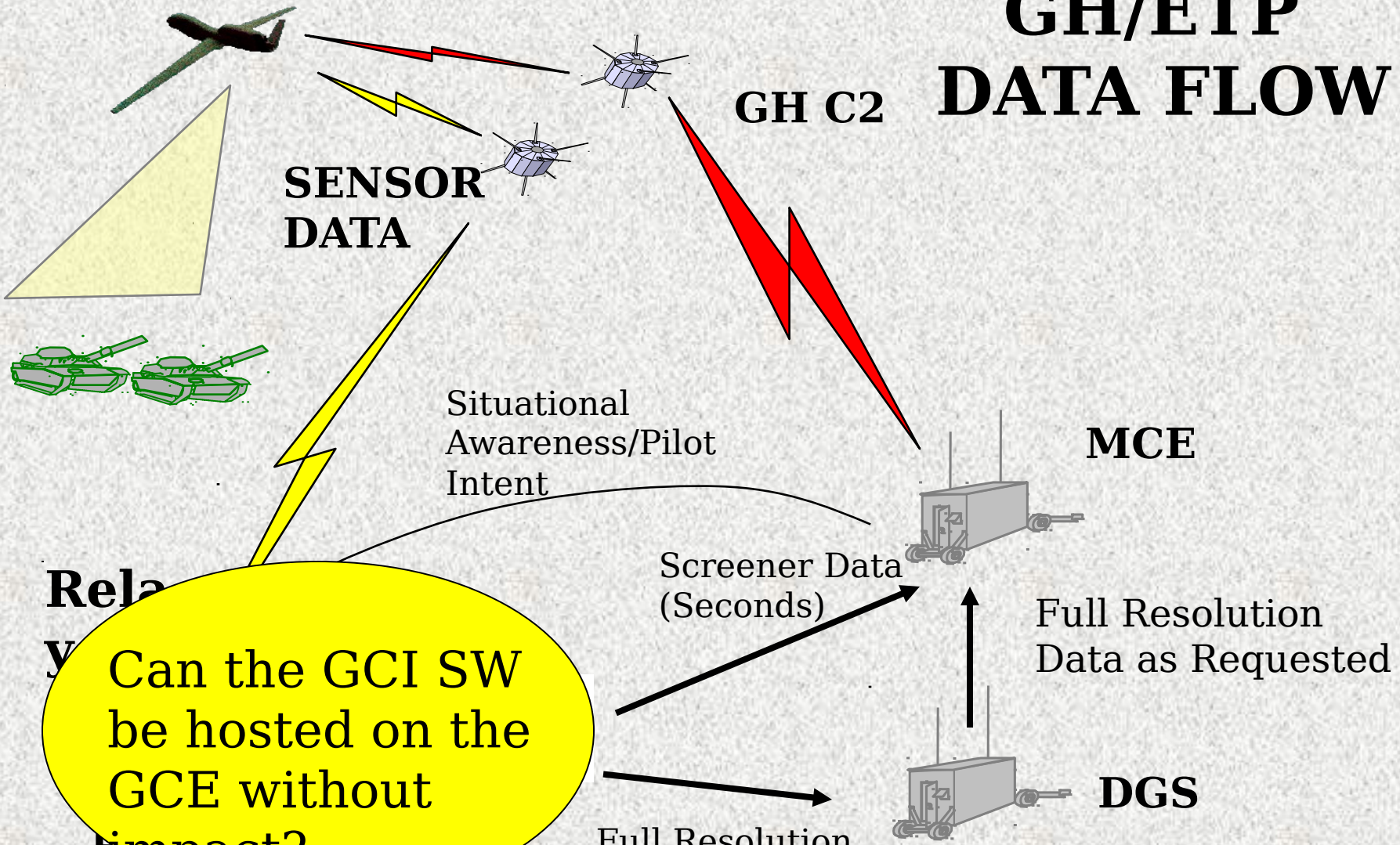


Sliding Windows Protocol

- Once ETP C2 is delivered what is required to support the return link acknowledgement?

- Will this correct any discrepancies with other CDL (LOS) links?

GH/ETP DATA FLOW

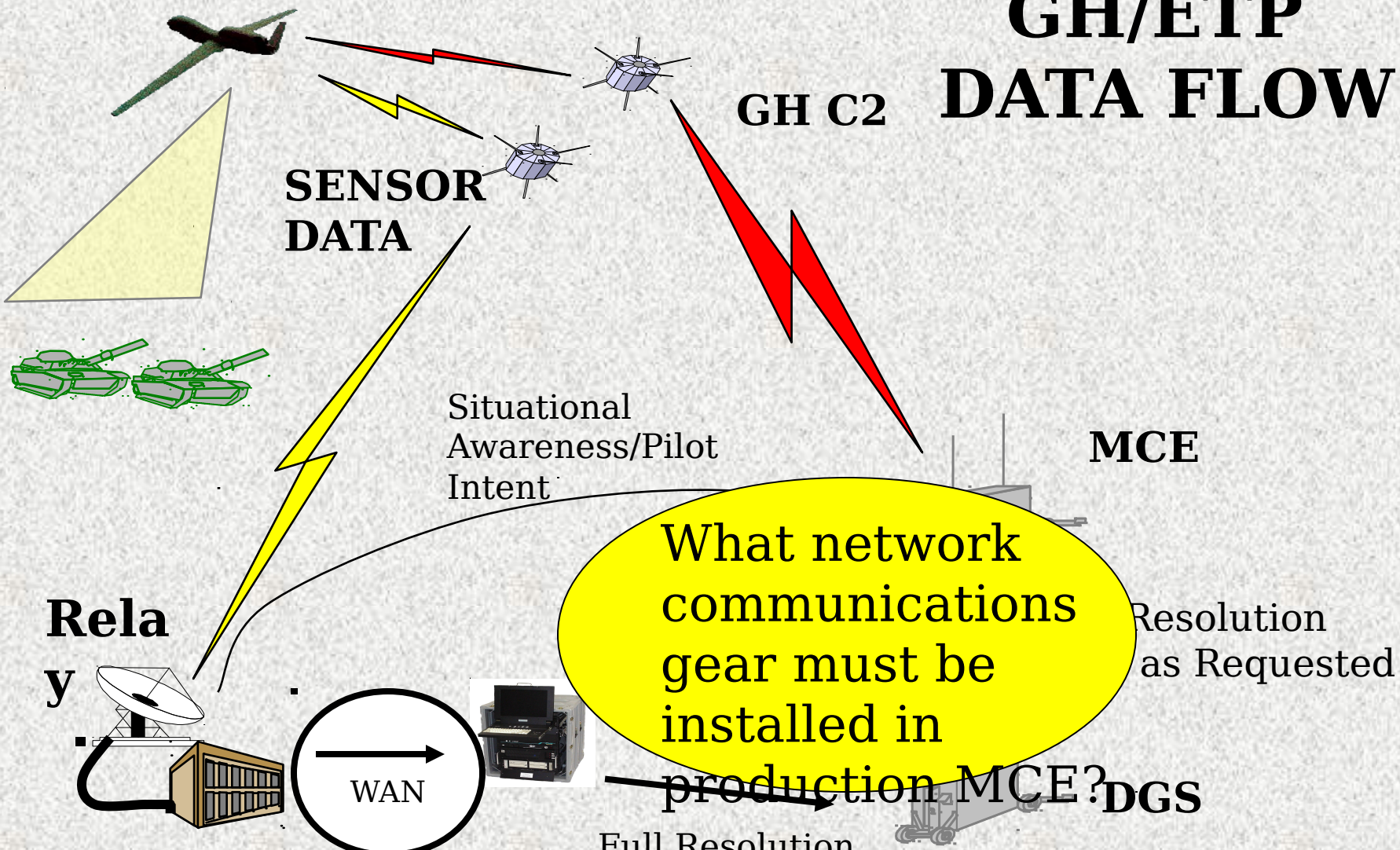


GCE and GCI Compatibility

- Can the GCE host the GCI software without impeding the GCE’s current operations

- What is the best solution GCI, CIP, Other??

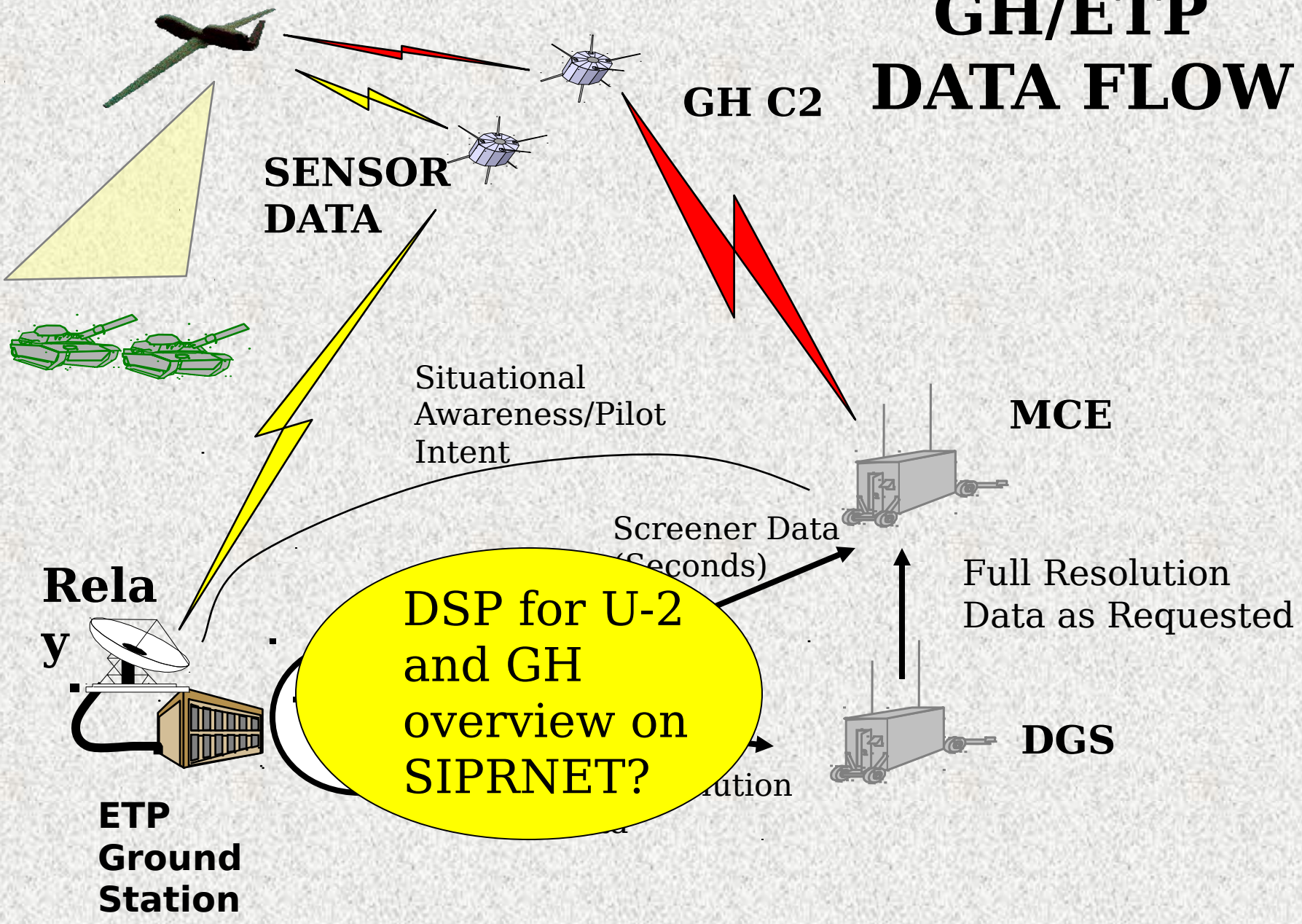
GH/ETP DATA FLOW



MCE Network Interfaces

- Will the production MCE have the same network interfaces that existed to support OIF?
- Will those interfaces include accreditation to the IC GIG (WAN)
- Who is responsible for the additional “hard line” for the SA/Pilot Intent?

GH/ETP DATA FLOW

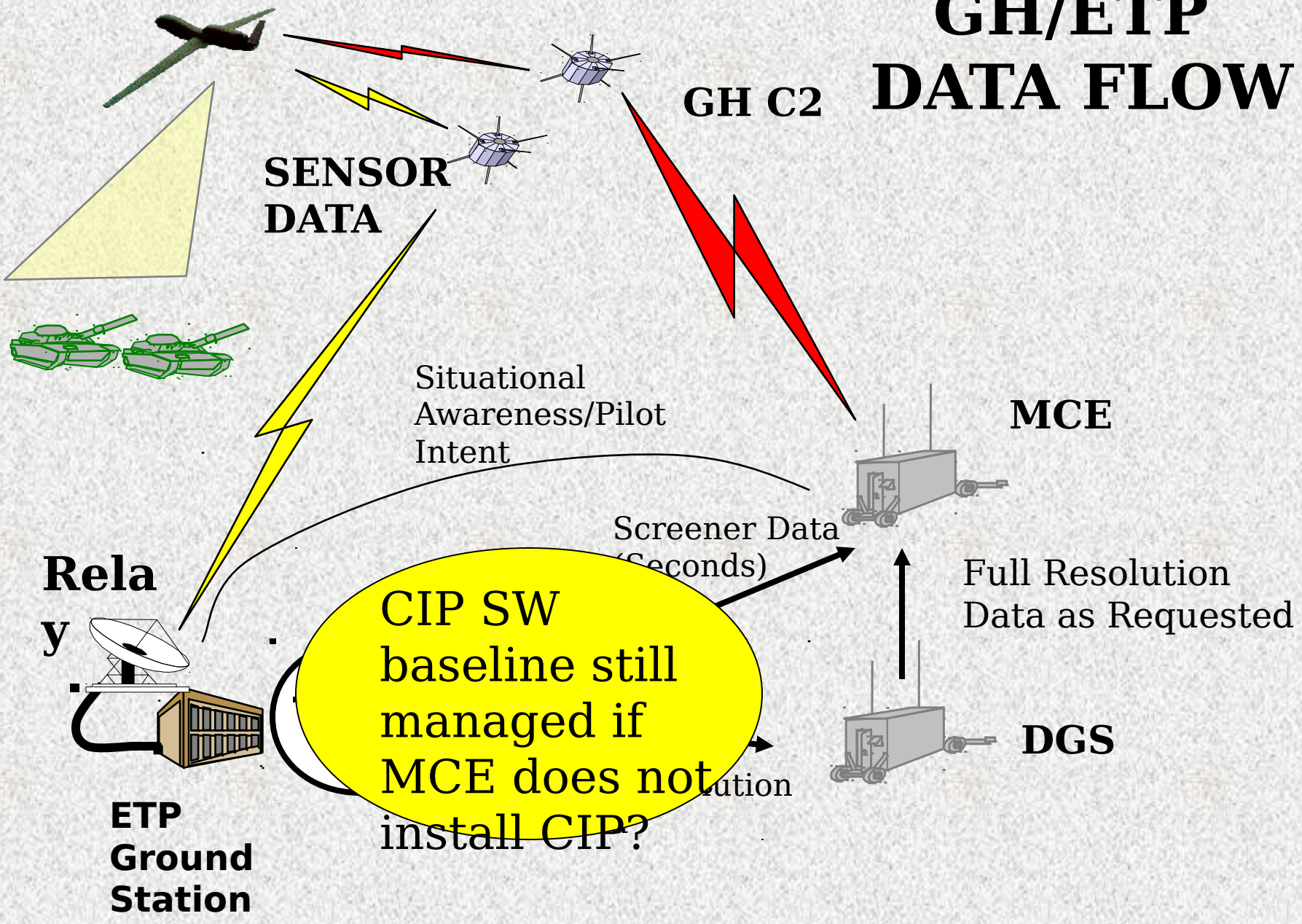


DSP for Situational Awareness

- The Distributed Sensor Planner will receive updates from the MCE for U-2 and GH SIPRNET web display

- What are the min/max requirements for display?

GH/ETP DATA FLOW



CIP Software Baseline

- GH SPO is considering not using the CIP. Will the CIP SPO still maintain the baseline for sensor updates and new sensors?

- Are there other impacts?

Issues

- Command and Control Data
  - Health and Welfare Status
  - Pilot Intent
- Overlay of U-2 and GH Aircraft
- Data Dissemination
  - DCGS
  - Multi-Int

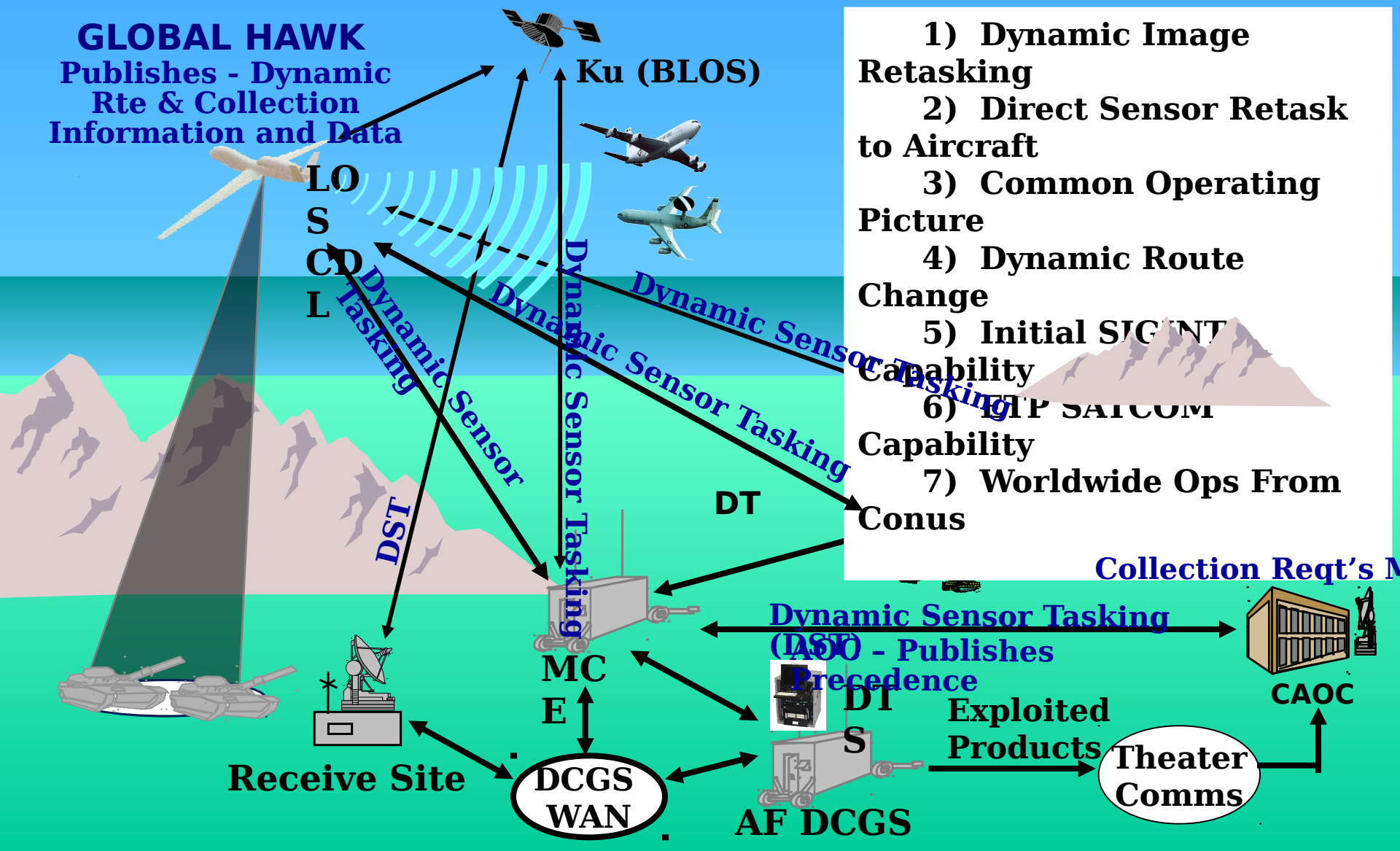
Other Issues

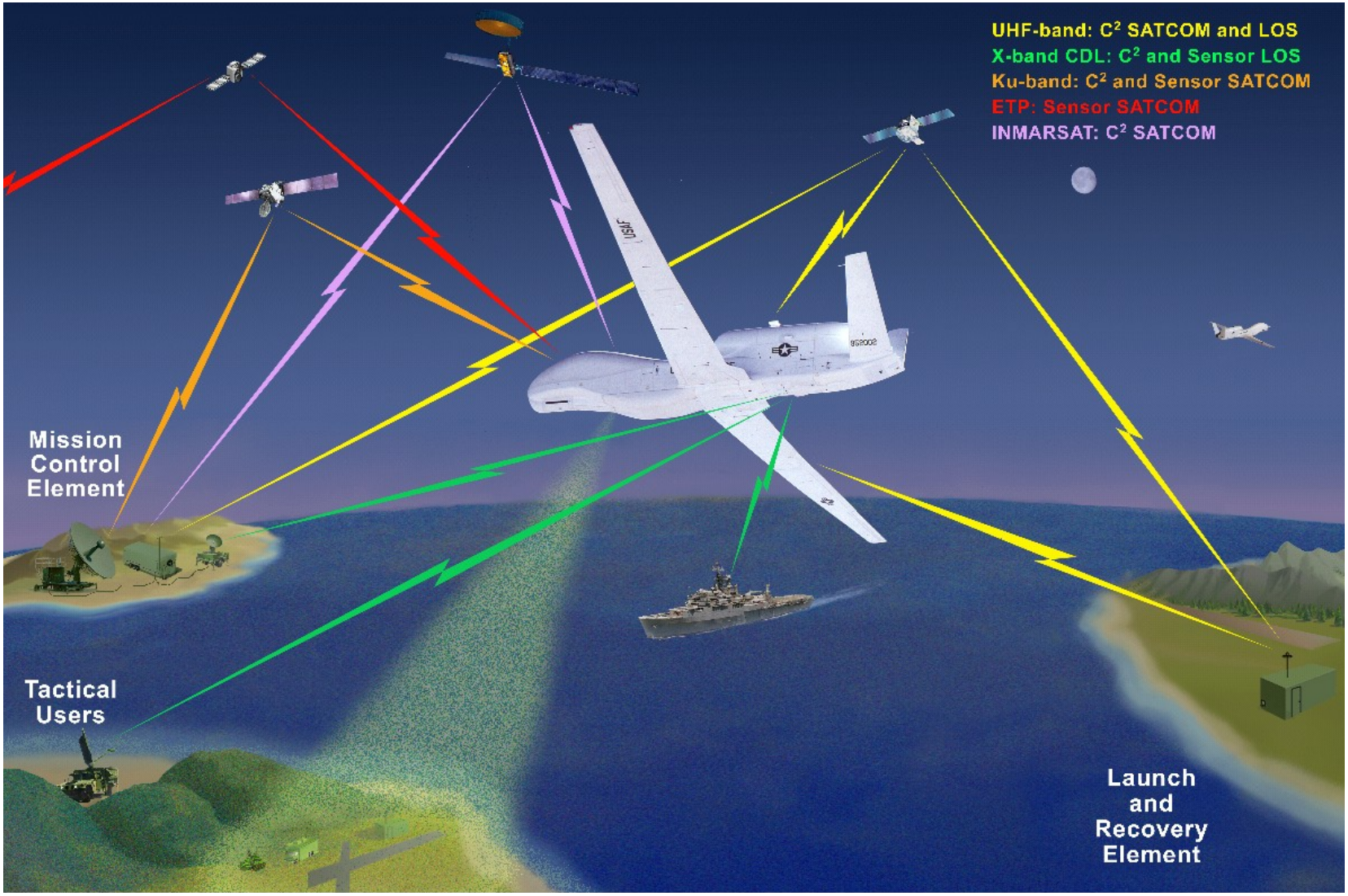
- Emergency Actions with Site-6
- Palmdale CDL testing
- MCE Process with ETP Feeds (Permanent Mods to include the ingest routers)

BACK-UPS

Global Hawk C4ISR Capability Evolution, 2007

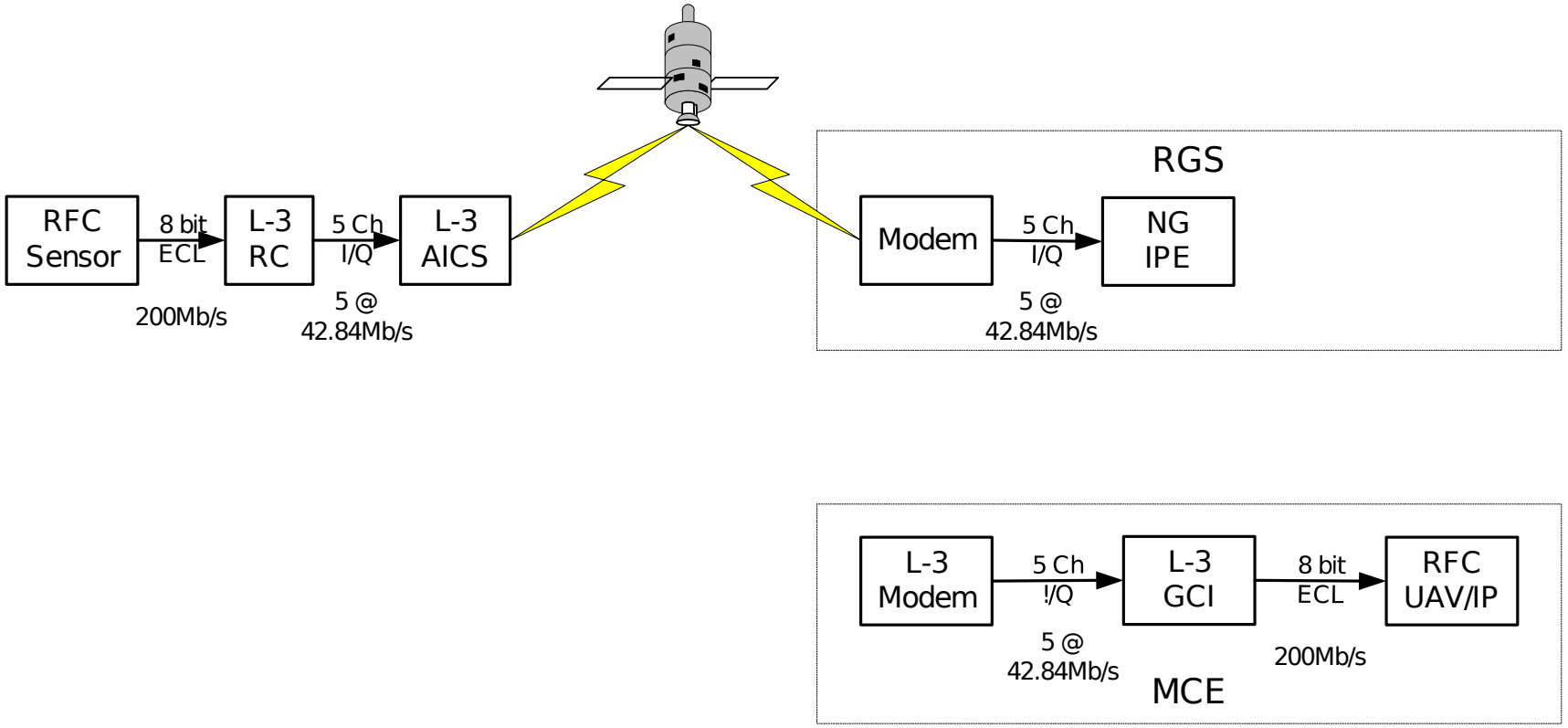
(Multi-INT, Multi-User, Time Critical OPS)



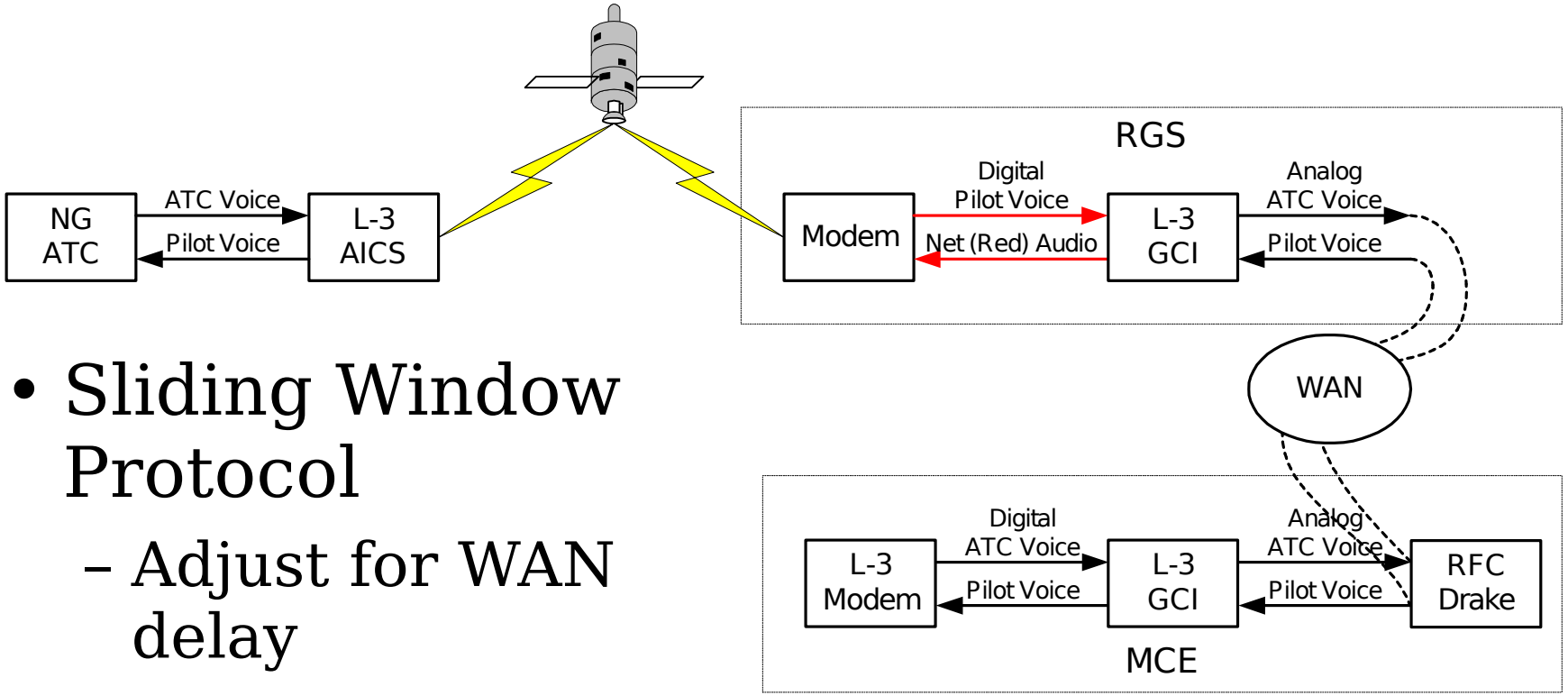

UHF-band: C² SATCOM and LOS
X-band CDL: C² and Sensor LOS
Ku-band: C² and Sensor SATCOM
ETP: Sensor SATCOM
INMARSAT: C² SATCOM
Mission Control Element
Tactical Users
Launch and Recovery Element

- Four to Six Data Links Integrated into a Single Suite
  - UHF Line of Sight (LOS)
  - UHF SATCOM
  - Inmarsat
  - Common Data Link (CDL) X-Band LOS
  - Commercial SATCOM
  - ETP
- Capable of Simultaneous Operation of five Links
- Command Control and Status (C2/Status) Available on All Links
  - Priority Based, Ordered System
- Wideband Sensor Data on SATCOM and LOS
  - 8-Bit Parallel Interface in Air and on Ground
  - 5 Selectable Rates (Currently 47, 39, 29, 19 or 7.8 Mb/s, add 200 Mb/s)
- Air Traffic Control (ATC) Relay Capability on SATCOM Links and X-Band LOS
- Dual Redundant MIL-STD-1553 C2/Status Interface in Air and on Ground

Global Hawk Sensor Data

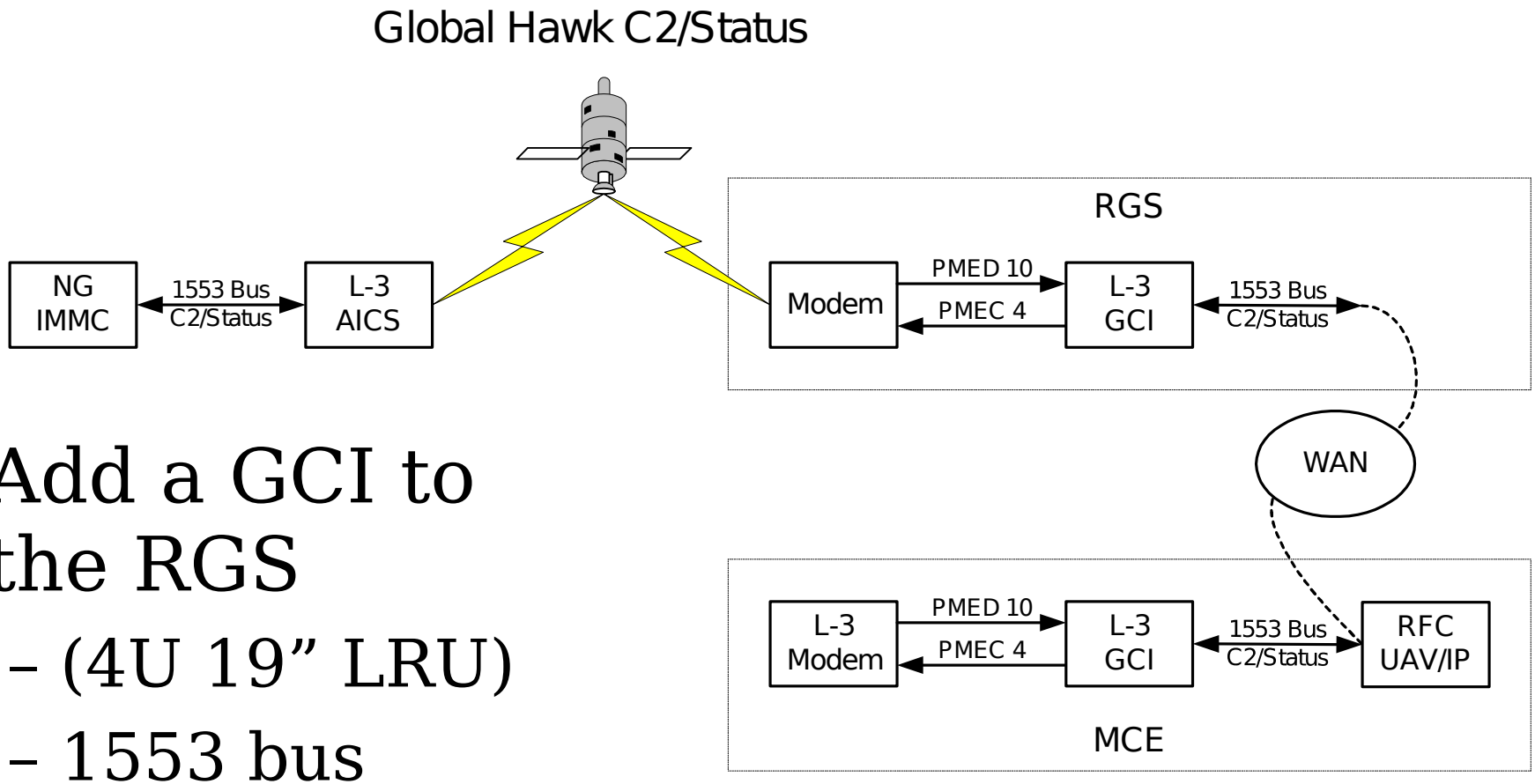


Global Hawk Voice



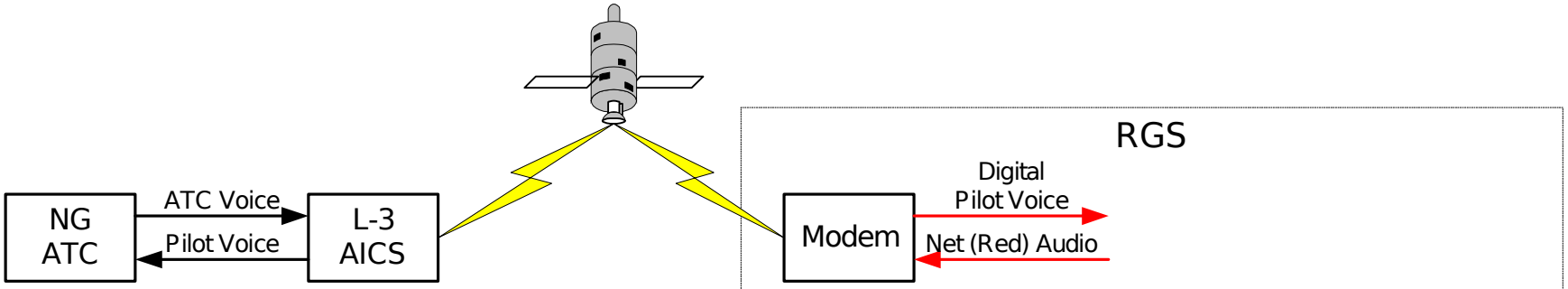
- Sliding Window Protocol
  - Adjust for WAN delay
  - L-3 proprietary

Frame word	Data Word Description	
1	Priority	Link Serial Number
2	Frame Control Discretes	
3-18	UAV C2/Status data words 1-16 or 17-32 (or Null)	
19	Confirmation Frame ID	
20	CRC	
21	Sync (B7/48 hex)	Checksum

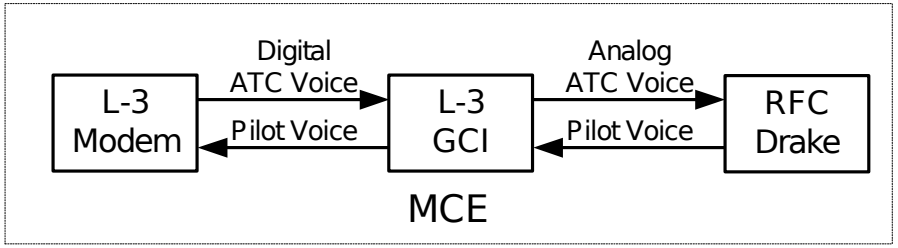


- Add a GCI to the RGS
  - (4U 19” LRU)
  - 1553 bus available to RGS

Global Hawk Voice



- GH ATC voice would map to U2 Pilot Voice
- GH Pilot Voice would map from ETP Secure Net Voice



		200.0628 Mb/s to 200.4912 Mb/s				
		Frame Size = 500				
	Qty	**I2**	**I3**	**Q1**	**Q2**	**Q3**
100 Bytes Long	1	Control	Data	Data	Data	Data
	5	Fill	Data	Data	Data	Data
	15	Data	Data	Data	Data	Data
	1	Data	Control	Data	Data	Data
	5	Data	Fill	Data	Data	Data
	14	Data	Data	Data	Data	Data
	1	Data	Data	Control	Data	Data
	4	Data	Data	Fill	Data	Data
	14	Data	Data	Data	Data	Data
	1	Data	Data	Data	Control	Data
	4	Data	Data	Data	Fill	Data
	14	Data	Data	Data	Data	Data
	1	Data	Data	Data	Data	Control
	4	Data	Data	Data	Data	Fill
	14	Data	Data	Data	Data	Data
	1	Data	Data	Data	Data	Data or Fill
	1	Sync	Sync	Sync	Sync	Sync